



**Fig. S1. Locomotion before and after decapitation.** Average locomotion speed of animals before decapitation is 1.63 mm/s and 1 day after decapitation (dpc) is 1.37 mm/s, significantly decreased (\*\* $P=0.0013$ ).

Sap47 corresponds to human SYAP1 (synapse associated protein 1). Identical and highly similar amino acids are colored in red. In the boxed region there is >50% similarity. Alignment done with <http://multalin.toulouse.inra.fr/multalin/>

**Table S1. Percentage of vibration induced body contraction.** Experiment I: all animals before and at 1 dpa or 5 dpa show a 100% response to vibration, these animals are identical with the ones tested for phototaxis and geotaxis. Experiment II: representing a control experiment to test if also smaller domains of the body are able to display vibration induced body contraction. All animals also show 100% response to vibration.

condition	%	N
<b>Exp. I. animals before decapitation</b>	<b>100%</b>	<b>67</b>
<b>Exp. I. animals 1dpa</b>	<b>100%</b>	<b>37</b>
<b>Exp. I. animals 5 dpa</b>	<b>100%</b>	<b>31</b>
<b>Exp. II. posterior half animals 1 dpa</b>	<b>100%</b>	<b>20</b>
<b>Exp. II. anterior half animals 1 dpa</b>	<b>100%</b>	<b>20</b>